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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/737,265	12/13/2000	Robert M. Fuerst	A1-051 US	1926

23683 7590 06/06/2003

MOLEX INCORPORATED
2222 WELLINGTON COURT
LISLE, IL 60532

EXAMINER

NGUYEN, PHUONGCHI T

ART UNIT PAPER NUMBER

2833

DATE MAILED: 06/06/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/737,265

Applicant(s)

FUERST ET AL.

Examiner

Phuongchi T Nguyen

Art Unit

2833

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on June 3, 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-5, 8-20 and 23-28 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10-15 and 25-28 is/are allowed.
- 6) ☒ Claim(s) 1-5, 8, 9, 16-20, 23 and 24 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 18) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other:

DETAILED ACTION

1. The finality of the Office Action of March 26, 2003 is hereby vacated due to the interview summary on June 3, 2003. The following is an action on the merits

Applicant's amendment of January 03, 2003 is acknowledged. It is noted that claims 1 and 16 are amended. Claims 6, 7, 21 and 22 are canceled. New Claims 25-28 are added.

Claim Objections

2. Claims 16-20 and 23-24 are objected to because of the following informalities:

Claim 16, line 9, "the outside" lacks proper antecedent basis.

Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 8 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al (US5297968) in view of Cooper et al (US4921437).

In regard to claim 1, Johnson discloses a connector assembly (see Attachment 1) comprising a male connector (A) including a relatively rigid male body member (11) having an edge (B) about which the flexible circuit (16) is wrapped with the first conductors of the circuit (16) facing away from the body member (11) at the edge (B) thereof; and an adapter (C) including a first receptacle (D) for removably receiving the male connector (A) inserted edge-first into the first receptacle (D), and a second receptacle (E, slot adjacent 20) having first (F) and second openings (G) remote (distant in space) from each other. Johnson discloses the invention,

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but lacks the first and second openings remote at different orientation for removably receiving the second conductors in two different directions. However, Cooper et al teaches the adapter (2) having the first (where connector cable 10 going through) and second openings (where connector cable 12 going through) remote at different orientation (figure 1). It would have been obvious to one having ordinary skill at the time the invention was made to modify the adapter of Johnson by orienting the first and second openings of the adapter at the different directions for having alternative directions during insertion.

In regard to claim 8, Johnson further discloses a second flat flexible circuit (on 21) (see Column 3, line 66) inserted into the first opening (F) of the second receptacle (E, slot adjacent 20) of the adapter (C), the second flexible circuit (on 21) having the second conductors (on 21, it is inherent) engageable with the first conductors (on 16, it is inherent) (see Attachment 1).

In regard to claim 16, Johnson discloses a connector assembly comprising a male connector (A) including a relatively rigid male body member (11) having an edge (B) about which the flexible circuit (16) is wrapped with the first conductors (on 16, it is inherent) of the circuit (16) facing away from the body member (11) at the edge (B) thereof; and a female connecting device (C) including a receptacle (D) for receiving the male connector (A) inserted into the receptacle (D), and an opening (F) in the device (C) communication the receptacle (D) with an outside of the device (C) and remaining open for removably positioning the second conductors (on 21) from exteriorly of the device (C) in engagement with the first conductors (on 16) of the flexible circuit (16) at the edge (B) of the male body member (11) (see Attachment 1).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 2-5 and 19-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al (US5297968) in view of Perino et al (US6234820B1).

In regard to claim 2, Johnson lacks a relatively yieldable backing structure. However, Perino teaches a relatively yieldable backing structure (370) on the body member (150, 310) at the edge thereof beneath the flexible circuit (365) for resiliently biasing the first conductors of the circuit (365) (see figure 3). It would have been obvious to one having ordinary skill at the time the invention was made to modify the connector assembly of Johnson by having a relatively yieldable backing structure as taught by Perino for having flexibility to the first conductor of the flexible circuit onto the adapter.

In regard to claim 3, Johnson lacks a longitudinal resilient strip. However, Perino teaches the body member (150) is elongated and the yieldable backing structure (370) comprises a longitudinal resilient strip along the edge (see figure 3). It would have been obvious to one having ordinary skill at the time the invention was made to modify the connector assembly of Johnson by having a longitudinal resilient strip as taught by Perino for increasing contact areas between the flexible circuit and the male connector body and adapter.

In regard to claims 4 and 19, Johnson lacks a position means. However, Perino teaches positioning means (345) on the body member (150) for locating the flexible circuit wrapped about the edge of the body member (150) (see figure 3). It would have been obvious to one having ordinary skill at the time the invention was made to modify the connector assembly of Johnson by having a positioning means as taught by Perino in order to fixedly hold the flexible circuit onto the male body member.

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In regard to claims 5 and 20, it would have been obvious to one having ordinary skill at the time the invention was made to modify the connector assembly of Johnson by having an adhesive as taught by Perino for having a good connection between the flexible circuit and the male body member.

- U
7/23/03
7. Claims 9, ^{17, 18, 23 and} 24, are rejected under 35 U.S.C. 103(a) as being unpatentable over Johnson et al (US5297968) in view of Kamono et al (US4973264).

In regard to claims 9 and 24, Johnson lacks a plurality of discrete electrical wires. However, Kamono teaches a plurality of discrete electrical wires (50) having second conductors (30) (see figures 2-4). It would have been obvious to one having ordinary skill at the time the invention was made to modify the connector assembly of Johnson by having a plurality of discrete electrical wires as taught by Kamono to engage with the first conductors of the flexible circuit for having a different connection when the user needed.

Claims 17, 18, 23 are rejected for the same reason of claims 2, 3, 8, respectively.

Allowable Subject Matter

8. Claims 10-15 and 25-28 are allowed.

Response to Arguments

9. Applicant's argument concerning of (claim 16) "the second conductors to be removably interconnected through the bottom of the hole 20 ... when that hole is closed and secured in closed condition by printed circuit board 17" is not deem persuasive. During assembling, the second conductors of flat cable 21 is removaly through the bottom hole 20 of the housing 12 to engage with the first conductors 16, and the opening G is remaining open. After assembling, the housing 20 of Johnson is SECURED to a printed circuit board 17 by fasteners 18. Therefore, Johnson et al will meet the claim language.

Conclusion

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).


A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Phuongchi T Nguyen whose telephone number is (703) 305-0729. The examiner can normally be reached on Monday through Thursday from 8:00AM to 4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paula Bradley can be reached on (703) 308-2319. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 305-7723 for regular communications and (703) 305-7723 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-7722.

June 2, 2003.


P. AUSTIN BRADLEY
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800

United States Patent [19]
Martellotti

[11] Patent Number: **4,971,575**

[45] Date of Patent: **Nov. 20, 1990**

[54] **HIGH DENSITY CONNECTOR**

[75] Inventor: **James Martellotti, Tustin, Calif.**

[73] Assignee: **North American Specialties of California, Inc., Irvine, Calif.**

[21] Appl. No.: **379,861**

[22] Filed: **Jul. 14, 1989**

[51] Int. Cl.⁵ **H01R 13/00**

[52] U.S. Cl. **439/496**

[58] Field of Search **439/492-499**

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,065,446	11/1962	Robb et al.	439/496
3,079,579	2/1963	Cummins et al.	439/496
3,082,398	3/1963	Valach	439/496
3,141,720	7/1964	Johnson	439/496

OTHER PUBLICATIONS

Article entitled "Electrically Actuated ZIF Connectors

Use Shape Memory Alloys"—Connection Technology, Apr. 1987.

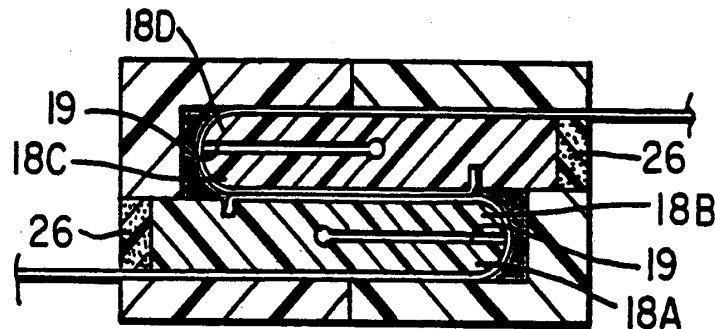
Primary Examiner—Joseph H. McGlynn
Attorney, Agent, or Firm—Darby & Darby

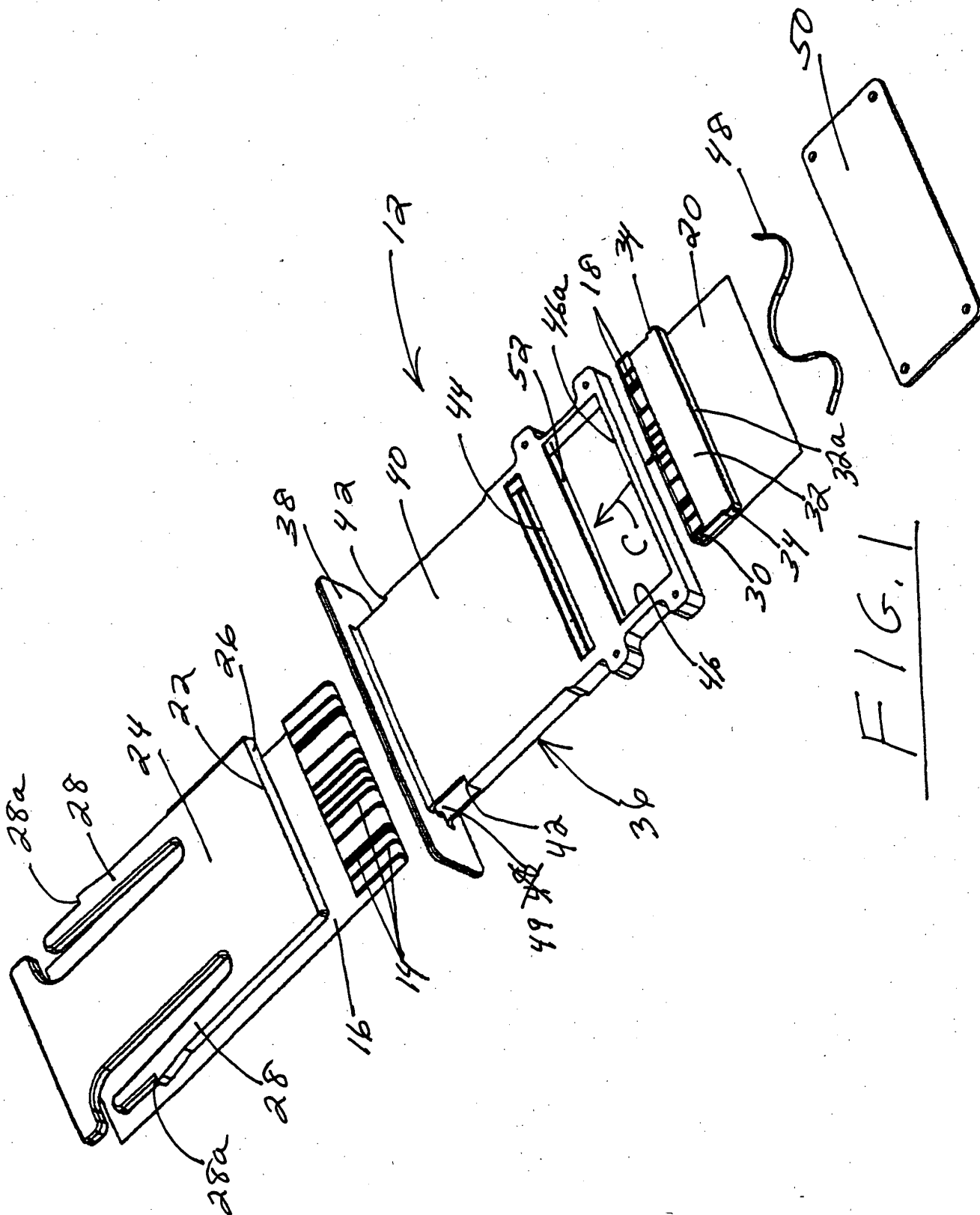
[57] **ABSTRACT**

A high-density connector arrangement for flat multi-conductor cables has a support housing, and flat cable support members held by the support housing. The cable supports may be organized in banks for increasing density of conductors, and are preferably releasably secured to the support housing. Contact between conductors on mating cable supports of two connectors is enhanced by providing resiliency of engagement, by causing the cable to arc outward or partially splitting the supports or providing a resilient layer arranged between the cable tape and its support.

23 Claims, 3 Drawing Sheets

EXHIBIT "A"





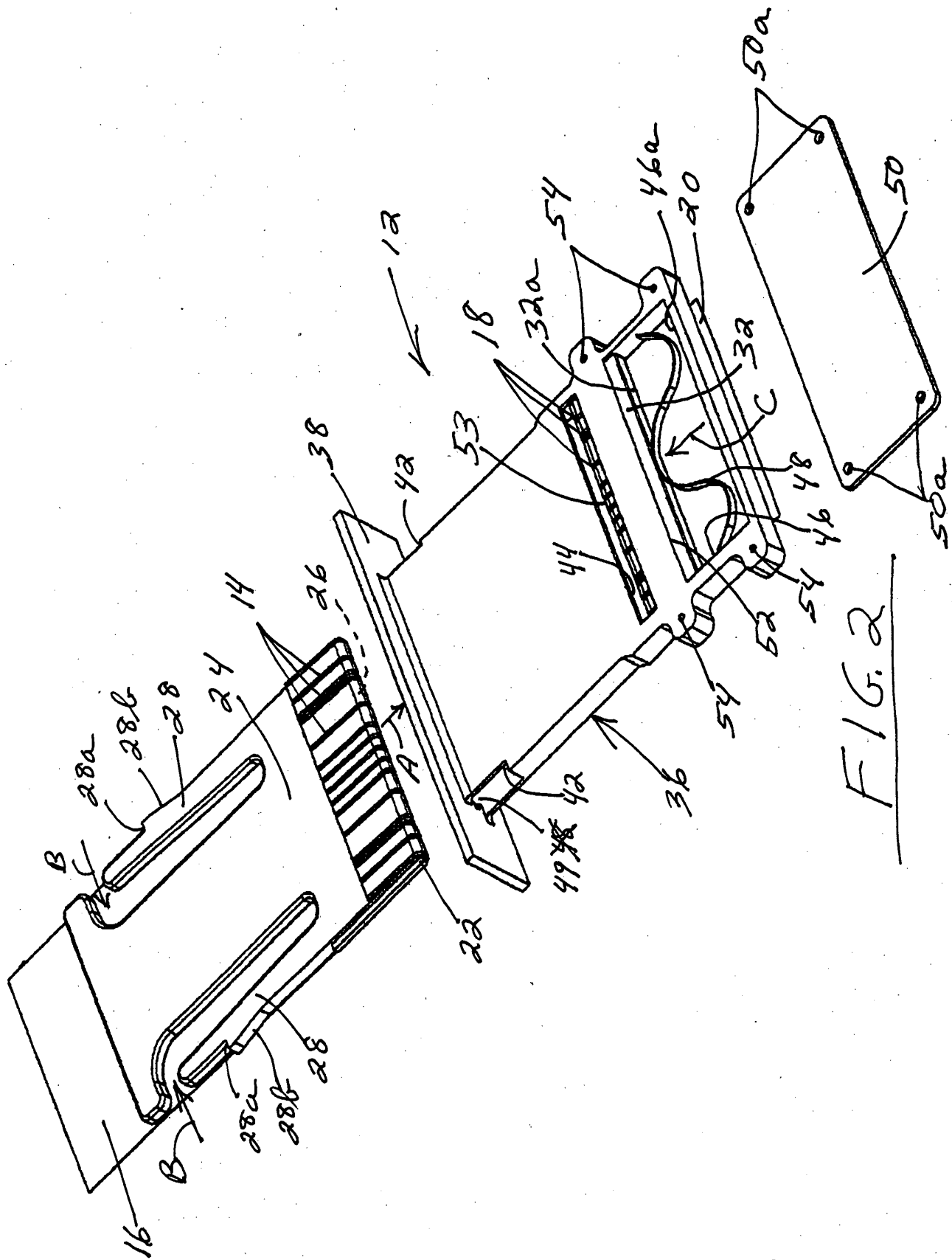
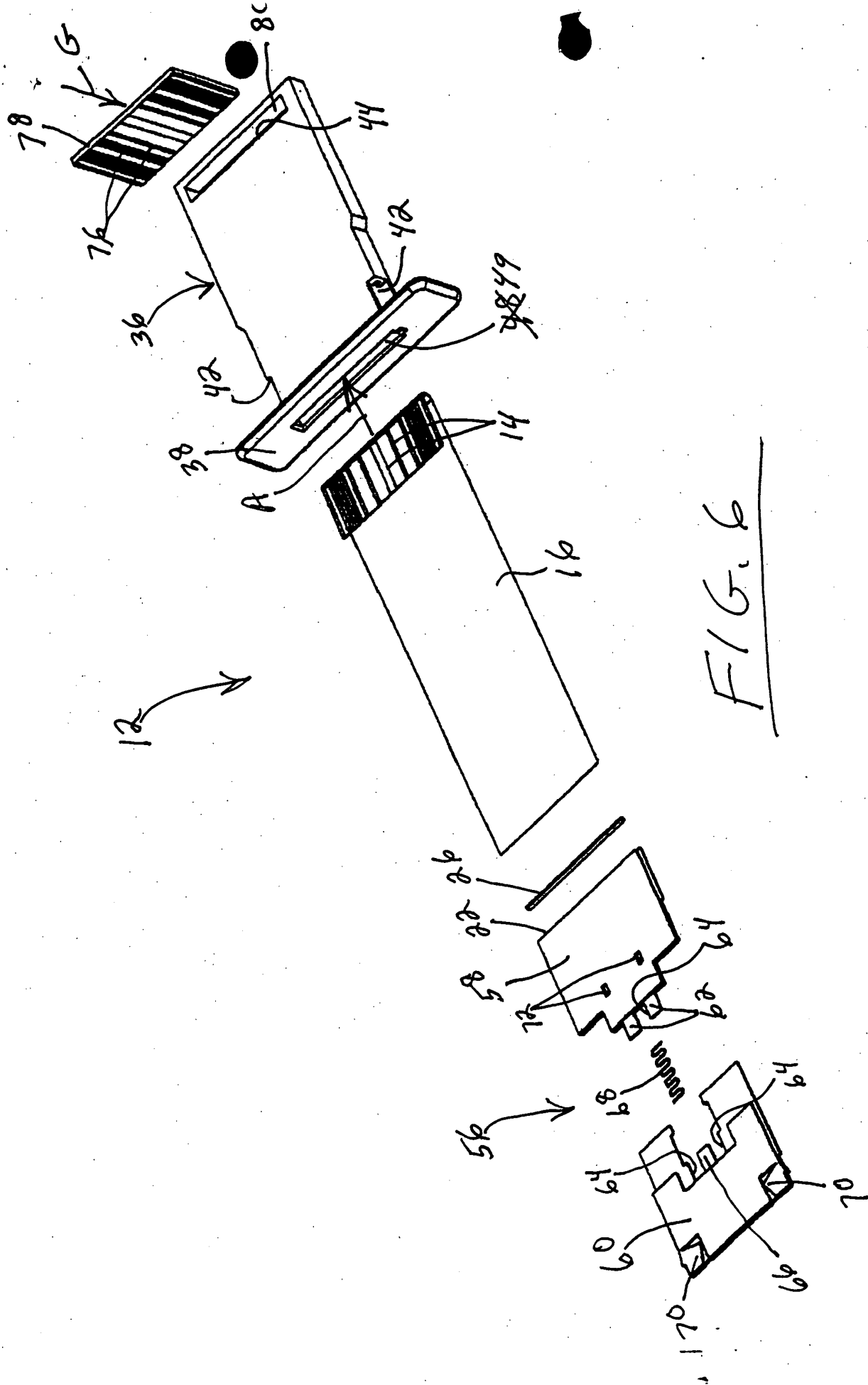


FIG. 2



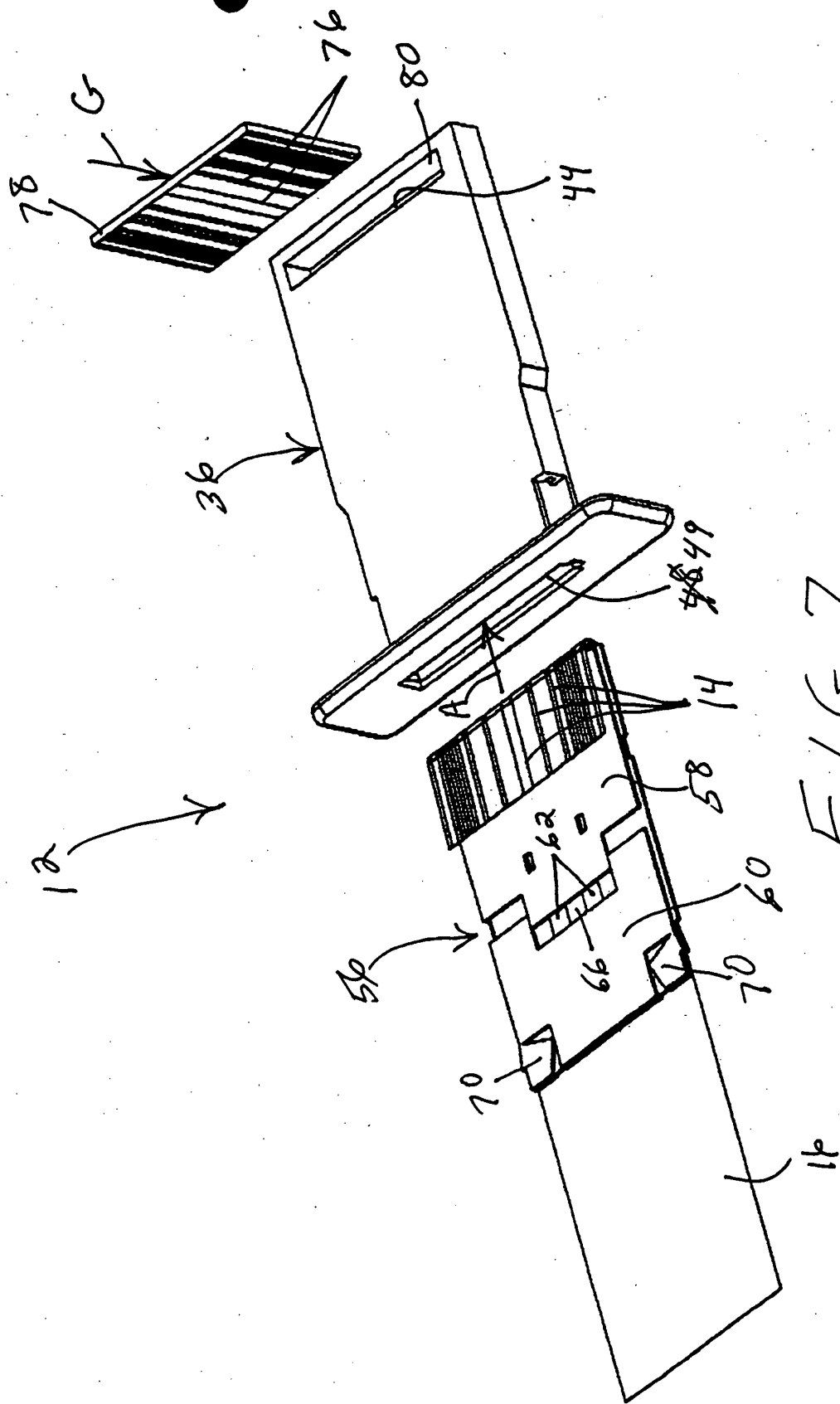


FIG. 7

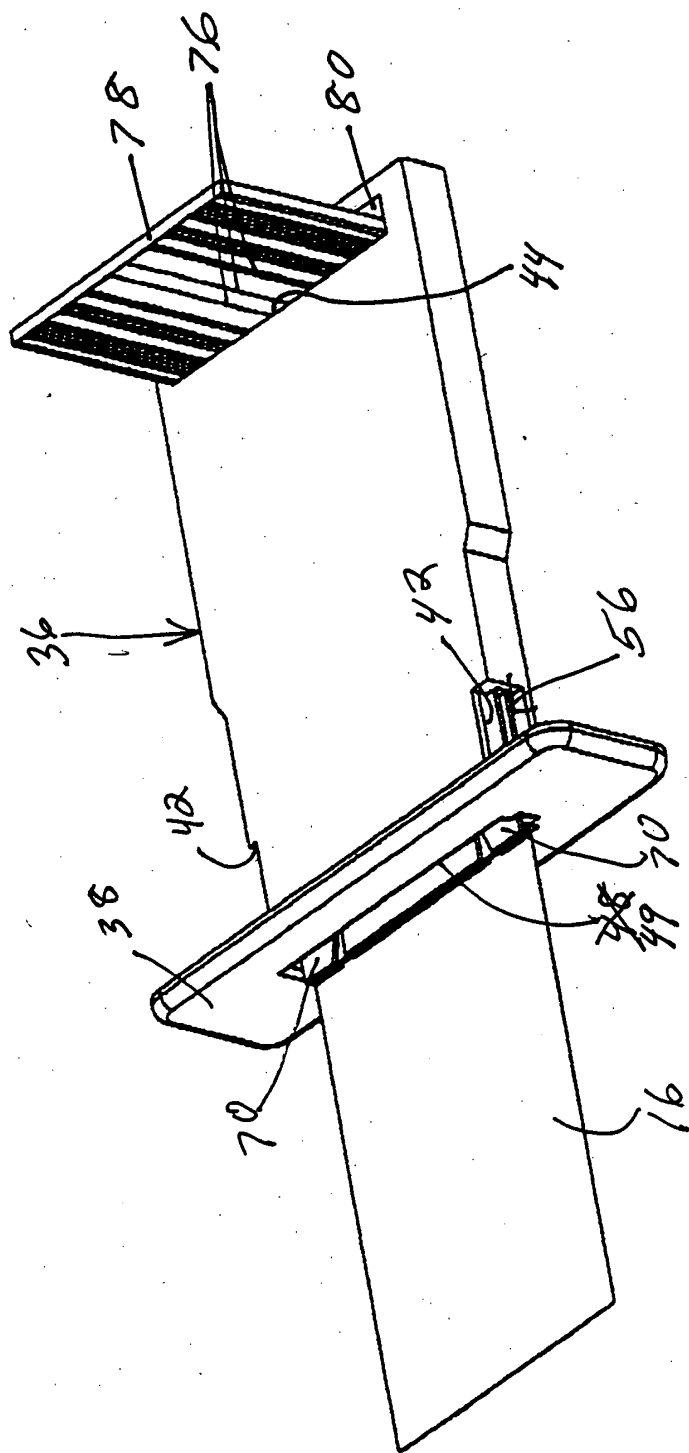


FIG. 8